

**TECHNICAL REVIEW AND EVALUATION
OF SIGNIFICANT REVISION TO
AIR QUALITY PERMIT NO. 28162**

I. INTRODUCTION

This significant permit revision is for El Paso Natural Gas Company (EPNG), for their Williams Compressor Station in Coconino County. This revision will designate the Ingersoll-Rand Reciprocating Internal Combustion Engine as an emergency generator, as well as correcting an incorrect equation in the current permit for the GE Gas Turbine Engine.

Company Information

Facility Name:	El Paso Natural Gas Company
Facility Address:	3 miles west of Exit 171 on I-40 West Coconino County, AZ 85046
Mailing Address:	PO Box 1087 Colorado Springs, CO 80901-9906

II. FACILITY DESCRIPTION

EPNG provides natural gas transportation services for natural gas suppliers and end users throughout the southwestern United States. EPNG operates six Reciprocating Internal Combustion Engines (RICE) and two Gas Turbine Engines at its Williams Compressor Station. This equipment is used to compress the natural gas to maintain enough pressure in the pipeline to keep the gas flowing through the network.

III. PERMIT REVISION DESCRIPTION

A. Requirements of 40 CFR §63, Subpart ZZZZ

40 CFR §63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Reciprocating Internal Combustion Engines (RICE), is applicable to the reciprocating engines at the Williams Compressor Station. The Clark reciprocating units are 2 stroke lean-burn (2SLB) units. 40 CFR §63.6590(b)(3) exempts these units from the requirements of Subpart ZZZZ.

Subpart ZZZZ is applicable to the Ingersoll-Rand auxiliary unit with a nameplate rating of 530 hp. The unit was installed in 1953, and is a four stroke rich-burn (4SRB) unit. The Subpart requires installation of a non-selective catalytic reduction (NSCR) by June 15, 2007, if the site rating of a 4SRB unit is at or above 500 brake horsepower. Emergency stationary RICE are excluded from the requirements of the Subpart by 40 CFR §63.6590(b)(3).

The definition of “Emergency Stationary RICE” is, “Any stationary RICE that operates in an emergency situation. Examples include stationary RICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility is interrupted, or stationary RICE used to pump water in the case of fire or flood, etc. Emergency stationary RICE may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by the manufacturer, the vendor, or the insurance company associated with the engine. Required testing of such units should be minimized, but there is no time limit on the use of emergency stationary RICE in emergency situations and for routine testing and maintenance. Emergency stationary RICE may also operate an additional 50 hours per year in non-emergency situations.”

The Permittee is redesignating the Ingersoll-Rand engine as an emergency stationary RICE effective June 1, 2007.

- B. Removal of the once per permit term testing requirement for the Ingersoll-Rand engine. This requirement is being removed because the Ingersoll-Rand engine is being designated as an emergency generator.
- C. Correction of NO_x emission limit equation for the GE Gas Turbine Engine

Condition III.C.1 of Attachment “B” of the current operating permit (No. 28162) incorporates the following equation for calculating the NO_x emission limit for the GE engine:

$$STD = 0.0075*(14.4)/Y+F$$

Where:

STD = allowable NO_x emissions (percent by volume at 15 percent oxygen and on a dry basis)

Y = manufacturer’s rated heat rate at manufacturer’s rated peak load (kilojoules per watt hour), or actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour.

F = NO_x emission allowance for fuel-bound nitrogen as defined in 40 CFR §60.332(a)(3)

This equation is taken from 40 CFR §60.332(a)(1), using 40 CFR §60.332(c) as the rationale. However, 40 CFR §60.332(c) applies to engines with a heat input at peak load between 10 million Btu/hr and 100 million Btu/hr. Based on the horsepower and heat rate for this engine, the heat input at peak load is 223 million Btu/hr. This means that 40 CFR §60.332(c) does not apply. 40 CFR §60.332(d) states that engines with a manufacturer’s base load at ISO conditions of 30 megawatts or less shall comply with 40 CFR §60.332(a)(2), not (a)(1), with an exception for electric utility stationary gas turbines. Since this engine is not an electric utility gas turbine, and the manufacturer’s rated base load at ISO conditions is 23.86 megawatts, which is less than the 30 megawatt threshold, 40 CFR §60.332(d) applies, and the correct equation to use is found in 40 CFR §60.332(a)(2):

$$STD = 0.0150*(14.4)/Y+F$$

Where STD, Y and F are defined as above.

IV. EMISSIONS

The facility is classified as a Major Source pursuant to Arizona Administrative Code (A.A.C.) R18-2-101.64. The potential emission rates of NO_x, CO, VOCs and hazardous air pollutants (HAPs) are greater than major source thresholds as shown in the table below:

Facility-Wide Emissions

Pollutant	Tons per Year
PM ₁₀	19.6
VOC	195
SO ₂	0.67
NO _x	2,983
CO	481
Federal HAPs	Formaldehyde – 26.6 Acetaldehyde – 22.4 All other HAPs are each < 10 tpy Total Facility HAPs – 58.05

This permit revision will increase the emission limit for NO_x from the GE gas turbine engine, because , with all other parameters being equal, the correct equation in the New Source Performance Standards will double the NO_x limit. This revision will reduce emissions from the Ingersoll-Rand engine, due to operating hours limitations.

V. PREVIOUS PERMIT

Permit No.	Permit Type
28162	Class I Air Quality Permit

VI. APPLICABLE REGULATIONS

The table below displays the applicable requirements for each equipment type under this proposed permit revision.

Verification of Applicable Regulations

Unit ID	Applicability date	Control Equipment	Applicable Regulations	Verification
Ingersoll-Rand RICE	June 1, 2007	None	40 CFR §63, Subpart ZZZZ	National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
GE Gas Turbine	1993		40 CFR §60, Subpart GG	Standards of Performance for Stationary Gas Turbines